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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,697	04/05/2005	Sandra Hintz	5003073.059US1	9659
29737 7590 03/17/2010 SMITH MOORE LEATHERWOOD LLP P.O. BOX 21927 GREENSBORO, NC 27420				
EXAMINER				
GODENSCHWAGER, PETER T				
ART UNIT		PAPER NUMBER		
1796				
NOTIFICATION DATE		DELIVERY MODE		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

phil.mccann@smithmoorelaw.com
lorna.selvaggio@smithmoorelaw.com
mary.garner@smithmoorelaw.com

Office Action Summary

Application No.

10/520,697

Applicant(s)

HINTZ ET AL.

Examiner

PETER F. GODENSCHWAGER

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 January 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/22)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date: _____

DETAILED ACTION

Applicant's reply filed January 11, 2010 has been fully considered. Claim 20 is amended, claims 25-35 are new, and claims 20-35 are pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 20, 21, 24, 31, 34, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Qin et al. (US Pat. No. 5,985,434) in view of Eagles et al. (US Pat. No. 5,840,777).

Regarding Claim 20: Qin et al. teaches a process of preparing a water-absorbent foam by forming an aqueous composition/solution in which a soluble polymer is dissolved in a solvent comprising at least 30 weight percent water (3:3-29 and 10:1-28). The soluble polymer may be, for example, polyacrylic acid (3:37-67). The solution may further comprise a crosslinking agent and optional components, such as surfactants (6:63-7:3; 10:36-38). A blowing agent is also added to the solution and subsequently initiated to form an absorbent foam (10:1-7). Qin et al. further teaches that substantially all of the solvent/water trapped in the foam should be removed (adjusting the content of water) (13:57-14:5). The recovered foam may subsequently undergo a further treatment in which the polymer is heated to a temperature between about 50°C to about 250°C to achieve a desired degree of crosslinking (14-33-55).

Qin et al. does not explicitly teach that the foam comprises less than 15% by weight of water. However, it is common practice in the art to optimize the relative amounts of result effective variables such as water/solvent content of an absorbent foam (see MPEP 2144.05). At the time of the invention, a person of ordinary skill in the art would have found it obvious to adjust the water content of the absorbent foam to less than 15% by weight and would have been motivated to do so because Qin et al. teaches that substantially all of the solvent/water trapped in the foam should be removed (13:57-14:5). Furthermore, Qin et al. teaches that the resultant foam should be between 95-100% by weight polymer, and that while insubstantial amounts of solvent/water may be present, the presence of any materials in the absorbent foam that are not the water-swellaable, water-insoluble polymer will tend to reduce the overall liquid absorbency capacity of the absorbent foam (4:28-55). Therefore one of ordinary skill in the art would be

motivated to reduce the amount of water/solvent to as close to 0% by weight as possible in order to maximize the absorbency of the foam.

Qin et al. does not teach that the foaming of the aqueous composition is by mechanical action. However, Eagles et al. teaches a method of forming an absorbent foam where the foam is mechanically foamed (foamed by mechanical action) (abstract, 1:5-15, and 2:40-65). Qin et al. and Eagles et al. are analogous art because they are concerned with the same field of endeavor, namely methods of making absorbent foams that may comprise polysaccharides. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the mechanical action foaming step of Eagles et al. in the process of Qin et al. and would have been motivated to do so because Eagles teaches that the mechanical action is a suitable foaming method for producing absorbent articles, and that the violence and/or period of agitation allows for control over foam pore size (1:5-15 and 2:40-65). Furthermore, Qin et al. teaches that foam pore size is important (8:55-65) and that other methods of foaming may be used (13:25-40).

Regarding Claim 21: Qin et al. teaches the process of claim 20 wherein the polymer of the aqueous composition has a molecular weight of greater than about 10,000 g/mol (4:19-27).

Regarding Claim 24: Qin et al. teaches a water-absorbent, foam-type polymer structure prepared from the process of claim 1 (3:3-29).

Regarding Claim 31: Qin et al. teach a disposable absorbent composite product (chemical product) comprising the absorbent structure of claim 24 (15:50-65)

Regarding Claims 34 and 35: Qin et al. teaches a disposable absorbent composite product (chemical product) comprising the absorbent structure of claim 24 positioned between a liquid-permeable top sheet and a back sheet (15:50-65).

Claims 22, 25, 26, 28-30, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Qin et al. (US Pat. No. 5,985,434) in view of Eagles et al. (US Pat. No. 5,840,777) as applied to claim 20 above, and further in view of Hähnle et al. (Intl. Pub. No. WO 00/52087, English language equivalent US Pat. No. 6,750,262 used for citation purposes).

Qin et al. in view of Eagles et al. render obvious the process of claim 20 as set forth above.

Regarding Claim 22: Qin et al. is silent regarding the foam liter weight of the final composition. However, Hähnle et al. also teach an absorbent foam prepared with a density preferably in the range of 0.05 to 0.5 g/cm^3 ($50 - 500 \text{ g/l}$) (17:61-62). At the time of invention, it would have been obvious to a person of ordinary skill in the art to add a blowing agent to the solution taught by Qin et al. such that the density of the foam product would fall in the range taught by Hähnle et al. The motivation would have been that absorbent foams with a density in the range taught by Hähnle et al. would be useful in applications such as hygiene articles (Hähnle et al. 19:7-14).

Regarding Claims 25, 26, and 30: Qin et al. in view of Eagles et al. renders obvious the process of Claim 20 including the step of heating the foam to cross-link and adjusting the water content to not more than about 15% by weight as set forth above.

Qin et al. does not expressly teach the process where the foamed composition is brought into contact with substrate and then heated to a temperature of from about 50 to about 300°C . However, Hähnle et al. also teach a composite wherein an absorbent foam is applied to a substrate, such as a sheet composed of polymers, metals, non-wovens, fluff, tissues, woven

fabric, natural or synthetic fibers, or other foams (13:13-40). The composite then undergoes a heat-treatment at a temperature in the range of 20 to 180°C (13:38-40, 60-62). According to Qin et al., heat-treating the polymer foam at a temperature between about 50 to 250°C will initiate crosslinking (14:53-55). The polymeric foam may be immobilized on the substrate, for example when the two are joined together as a composite with a sandwich-like structure (Hänhle et al. 13:31-37). At the time of invention, it would have been obvious to a person of ordinary skill in the art to use the process taught by Hänhle et al. to form the composite taught by Qin et al. The motivation would have been that process taught by Hänhle et al. is useful in preparing composite materials suitable as diapers, sanitary towels, etc. (Hänhle et al.: 19:7-14).

Regarding Claims 28, 29, and 32: Qin et al. in view of Eagles et al. renders obvious the process of Claim 20 as set forth above.

Qin et al. does not teach the process where a portion of the surface of the water-absorbent foam structure is brought into contact with a portion of the surface of the substrate and immobilized upon it. However, Hänhle et al. also teach a composite wherein an absorbent foam is applied to a substrate, such as a sheet composed of thermoplastic polymers such as polyethylene or polypropylene (13:15-18, 31-40). At the time of invention, it would have been obvious to a person of ordinary skill in the art to use the process taught by Hänhle et al. to form the composite taught by Qin et al. The motivation would have been that process taught by Hänhle et al. is useful in preparing composite materials suitable as diapers, sanitary towels, etc. (Hänhle et al.: 19:7-14).

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Qin et al. (US Pat. No. 5,985,434) in view of Eagles et al. (US Pat. No. 5,840,777) as applied to claim 20 above, and further in view of Ishizaki et al. (US Pat. No. 6,001,911).

Qin et al. in view of Eagles et al. render obvious the process of claim 20 as set forth above.

Qin et al. do not expressly disclose a step in which the structure is smoothed. However, Ishizaki et al. also teach a method of making an absorbent resin in which a crosslinked polymer composition is prepared and then calendared, so that the resultant absorbent product has at least one smooth surface (Abstract). Qin et al and Ishizaki et al. are analogous art as they are from the same field of endeavor, namely absorbent polymeric compositions. At the time of invention, it would have been obvious to a person of ordinary skill in the art to smooth the foam taught by Qin et al. The motivation would have been that a foam with a smoothed surface would provide advantages such as comfort to the wearer of an article, for example a diaper, containing this foam.

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Qin et al. (US Pat. No. 5,985,434) in view of Eagles et al. (US Pat. No. 5,840,777) and Hähnle et al. (Intl. Pub. No. WO 00/52087, English language equivalent US Pat. No. 6,750,262 used for citation purposes) as applied to claim 25 above, and further in view of Brueggemann et al. (US Pat. No. 6,033,769).

Qin et al. in view of Eagles et al. and Hähnle et al. render obvious the process of claim 25 as set forth above.

Qin et al. teach a process for preparing a composite but do not expressly disclose that templates are used during the application of the polymeric foam to a substrate. However, Brueggemann et al. also disclose a method for preparing a water-absorbent polymeric foam and then applying it to a substrate using a template (3:41-49). Qin et al. and Brueggemann et al. are analogous art as they are from the same field of endeavor, namely water-absorbent polymeric foams. At the time of invention, it would have been obvious to a person of ordinary skill in the art to use templates to form the foam composition taught by Qin et al. to a substrate. The motivation would be that the templates would be useful in applying the foam only within a specified area on the substrate (Brueggemann et al, 3:41-49).

Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Qin et al. (US Pat. No. 5,985,434) in view of Eagles et al. (US Pat. No. 5,840,777 as applied to claim 20 above, and further in view of Chen et al. (US Pub. No. 2001/0024716).

Qin et al. in view of Eagles et al. render obvious the process of claim 20 as set forth above.

Qin et al. does not expressly teach that one or more of the blowing agents is selected from inorganic salts or organic compounds capable of decarboxylation. However, Chen et al. also teach an absorbent foam wherein the blowing agent used to prepare the foam may be a citric acid mixture ([0149]). Qin et al. and Chen et al. are analogous art as they are from the same field of endeavor, namely water-absorbent foams. At the time of invention, it would have been obvious to a person of ordinary skill in the art to use citric acid as a blowing agent in the foam taught by Qin et al. The motivation would have been that citric acid as a blowing agent provides

advantages such as promoting both expansion and crosslinking of fiber additives in a foamable composition (Chen et al.: [0112]).

Response to Arguments

Applicant has presented no new arguments in the reply filed January 11, 2010 regarding the instant claims.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PETER F. GODENSCHWAGER whose telephone number is (571)270-3302. The examiner can normally be reached on Monday-Friday 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/
Supervisory Patent Examiner, Art Unit 1796

/P. F. G./
Examiner, Art Unit 1796